Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Notice and Opportunity for Public Comment under Section 605(b) of the MOBILE NOW Act	)	GN Docket No. 18-122
	)	
	)	

COMMENTS OF
EUTELSAT S.A.

Eutelsat S.A. ("Eutelsat") herein provides comment to support the Commission's report to Congress addressing the feasibility of allowing commercial wireless systems to use or share the 3.7-4.2 GHz band.[1] Eutelsat is one of the largest satellite operators in the world, maintaining 39 satellites positioned to serve users in 150 countries in Europe, Africa, Asia and the Americas, including four satellites that use the 3.7-4.2 GHz band to provide important communications services to support industry and government operations in the United States.[2] As instructed in the Public Notice,[3] Eutelsat herein summarizes and incorporates by reference its reply comments in the Commission's mid-band Notice of Inquiry proceeding, GN Docket No. 17-183.[4]

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[1] Public Notice, *Office Of Engineering and Technology, International, and Wireless Telecommunications Bureaus Seek Comment for Report on the Feasibility of Allowing Commercial Wireless Services, Licensed or Unlicensed, to Use or Share Use of the Frequencies Between 3.7-4.2 GHz, Notice and Opportunity for Public Comment under Section 605(b) of the MOBILE NOW Act*, GN Docket No. 18-122, DA-18-446 at 2 (May 1, 2018) ("*Public Notice*").

[2] Eutelsat, through its subsidiaries, Satelites Mexicanos, S.A. de C.V. (d/b/a Eutelsat Americas) and ES 172 LLC, operates five satellites that provide services in the United States,[2] four of which operate in the C-band frequencies of 3.7-4.2 GHz and 5.925-6.425 GHz.

[3] *See Public Notice* at 1 n.2.

[4] *See* Reply Comments of Eutelsat S.A., GN Docket No. 17-183 (Nov. 15, 2017).

I. THE COMMISSION'S REPORT TO CONGRESS SHOULD ACKNOWLEDGE THE IMPORTANCE OF SATELLITE COMMUNICATIONS SERVICES USING THE 3.7-4.2 GHZ BAND AND THE EXTREME DIFFICULTIES THAT WOULD EXIST IN TRYING TO SHARE THIS SPECTRUM WITH WIDELY DEPLOYED MOBILE WIRELESS SERVICES

The Commission's public notice initially requests comment on how it should assess the operations and possible impacts that spectrum sharing would have on Federal and non-Federal users already operating in the 3.7-4.2 GHz band.[5] Eutelsat recommends that this assessment be completed in two steps. First, the Commission should recognize the important satellite communications services that currently operating using the 3.7-4.2 GHz band and the extreme difficulties that would exist in continuing to provide these services on a cost effective basis using other frequency bands or technologies. Second, the Commission should explain to Congress that commercial wireless systems cannot operate in all or any portion the 3.7-4.2 GHz band on a shared basis with incumbent satellite communications service absent the use of large exclusion zones, partitioning of the band, or other preclusive measures to ensure that the relatively weak satellite links that operate in this spectrum are adequately protected from harmful interference.

A. Major U.S. Industries, Government Agencies and Information Service Providers Rely on C-Band Satellite Services To Support Critical Communications Needs

Eutelsat's customers in the United States use C-band satellite services to support a wide range of important communications functions. Many of the major U.S. oil companies use Eutelsat's C-band satellite services to transmit data and operational information between facilities in the United States and oil platforms and ships in the Gulf of Mexico. The use of fixed and transportable C-band satellite earth stations helps to ensure that critical communications

[5] *See Public Notice* at 2.

regarding worker safety and operational continuity are maintained during heavy rain and other adverse weather conditions.

C-band satellite capacity on Eutelsat's 113 West A satellite is also used to distribute ethnic video programming services to cable television head end facilities in the United States, contributing to the diversity of programming that is available to U.S. consumers. C-band satellite capacity provides optimal characteristics for the distribution of digital video programming, allowing coverage of large geographic areas, while ensuring very high reliability and availability.

Eutelsat is also using its C-band satellite capacity to support internet access services in very remote areas of the United States. For example, Eutelsat is supporting Alaska Communications Systems Group, Inc., which is the largest incumbent local exchange carrier in Alaska, using the Eutelsat 115 West B satellite to provide essential broadband and voice-over-Internet Protocol ("VoIP") services to enterprise, business, educational, health care, and residential customers throughout Alaska.[6] C-band satellite capacity is essential to provide reliable and uninterrupted broadband communications to remote communities where traditional communication services are generally unavailable. Eutelsat's C-band satellite services can be used to support similar solutions in other rural and remote areas of the United States.

The U.S. government uses C-band satellite capacity on Eutelsat's 172A satellite to support critical communications between Hawaii and U.S. facilities in Asia. In addition, Eutelsat's 117 West B satellite is being used to support the FAA's Wide Area Augmentation System ("WAAS"), which greatly increases the accuracy of the Global Position System,

[6] *See* Alaska Communications Internet, LLC, FCC File No. SES-STA-20170925-01054 (granted Sept 28, 2017).

permitting its use by aircraft for navigation and instrument-guided landing and approach. The WAAS payload on Eutelsat 117 West B uses the upper portion of the 3.7-4.2 GHz band for telemetry downlinks with feeder link earth stations in the United States.[7]

B. C-Band Satellite Services Cannot be Moved to Other Satellite Spectrum or Replaced Using Other Distribution Technologies

The industries, government agencies, and information service providers that depend on C-band satellite communications services do so for very fundamental reasons. First, satellites provide by far the most cost effective and efficient measures to transmit very large amounts of data (such as video programming) simultaneously to countless receive stations located throughout a continent, including to locations that lack access to terrestrial distribution networks. These capabilities could not be replicated on a cost effective basis with fiber or fixed microwave links, even if such facilities were available in every location in the country where they would be required – which they are not.

Second, *C-band* satellite services operate in spectrum that has very low rain attenuation and, as a result, provides highly reliable and ubiquitous communications links that remain available during severe weather conditions and are rapidly recoverable following disasters. These important capabilities cannot be achieved using terrestrial communications services, or using satellite systems operating in other spectrum bands. Therefore, Eutelsat urges the Commission to acknowledge in its report to Congress that all or most of the 3.7-4.2 GHz band must remain available to support critically important satellite communications services used by industry, government agencies, and information service provides in the United States.

[7] *See, e.g.*, IBFS File Nos. SES-MFS-20140630-00546 and SES-MFS-20140630-00548.

II. PROPOSALS FOR SHARING BETWEEN C-BAND SATELLITE SERVICES AND COMMERCIAL WIRELESS SYSTEMS REQUIRE FURTHER STUDY

The second issue identified by the Commission's public notice is the manner in which sharing might be accomplished with licensed or unlicensed commercial wireless systems in all or a portion of the 3.4-4.2 GHz band "without causing harmful interference to Federal and non-Federal users already operating in this band."[8] As noted above, the 3.7-4.2 GHz band is already heavily used by critically important satellite communications services. Therefore, the Public Notice implicitly seeks comment on the feasibility of spectrum sharing between satellite services and wireless communications networks.

Unfortunately, the inherent differences between satellite and terrestrial mobile services make co-frequency spectrum sharing extremely difficult, if not impossible. Satellite earth stations at fixed locations must be able to receive the relatively weak transmissions from geostationary satellites positioned 36,000 kilometers above the equator. As discussed above, the major users of C-band satellite capacity – including industry, the U.S. government, and the broadcast television and radio industries – require very high availability and reliability for these transmissions, with no excepts for signal outages or brief interruptions.

In contrast, commercial wireless networks operate using relatively short range links that operate at much higher power levels than the signals received by satellite earth stations. Wireless networks also operate with end user transceivers that are mobile and thus cannot be coordinated with fixed earth station receivers. Therefore, absent the use of large exclusion zones where mobile wireless devices could not operate, it would be very difficult to protect C-band satellite services from harmful interference caused by co-frequency wireless networks.

[8] *Public Notice* at 2.

Recognizing this, the two largest commercial satellite operators serving the United States – Intelsat and SES – are exploring ways to remove C-band satellite operations out of the lower 100 MHz portion of the 3.7-4.2 GHz band in geographic areas where additional commercial wireless spectrum may be needed, *i.e.*, in heavily populated communities. Eutelsat is continuing to evaluate various aspects of this proposal, particularly the amount of C-band spectrum that would be identified for clearing in the 3.7-4.2 GHz band.

Initial indications were that 100 MHz in the 3.7-3.8 GHz portion of the band might be made available for commercial wireless services in major cities. Eutelsat may be able to accept such a proposal as long as sufficient measures are available to compensate Eutelsat and its customers for their expenses and opportunity losses in clearing this spectrum. Terrestrial wireless interests, however, have repeatedly argued that more than 100 MHz of the 3.7-4.2 GHz band should be cleared for mobile use, which Eutelsat does not believe is achievable.

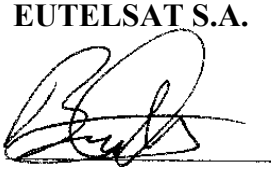
The Intelsat's proposal for partial band clearing has been endorsed by the two largest satellite operators (Intelsat and SES), which seek to manage the reconfiguration process. Eutelsat believes, however, that an adequate role for other C-band satellite operators, and for the major U.S. companies and government agencies that use C-band satellite services to support mission-critical communications, is needed to reach a consensus agreement on a partial band clearing approach. As Intelsat's original proposal acknowledged, an "important" consideration is ensuring that any C-band spectrum clearing "does not come at the expense of existing FSS users who rely on C-band downlink spectrum access."[9]

[9] *See* Joint Comments of Intelsat License LLC and Intel Corporation, GN Docket No. 17-183, at 14 (Oct. 2, 2017).

Most importantly, given the critical importance of many of the communications services that are supported by C-band satellite networks, the Commission should recommend in its report to Congress that any voluntary process that is adopted to permit commercial wireless services to operate in a portion of the 3.7-4.2 GHz band does not evolve into a coercive or compulsory process of band clearing. The statutory mandate to manage spectrum resources in furtherance of the public interest necessitates that scarce spectrum resources be allocated in a technically-neutral manner. The fixed satellite service retains a co-primary allocation in the 3.7-4.2 GHz in every region of the world in recognition of the importance of this spectrum to the provision of highly reliable and available satellite services. Consistent with this, the Commission should recommend to Congress that C-band satellite operators – in consultation with their U.S. customers – should be permitted to determine individually whether C-band satellite services continue to provide the most efficient and reliable communications service to support their needs and whether a portion of the 3.7-4.2 GHz band could be made available for wireless use.

Respectfully submitted,

EUTELSAT S.A.

By: 

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May 31, 2018